



Happy 4<sup>th</sup> of July!

## PIC QUESTION OF THE WEEK: 7/05/10

Q: What are some of the general guidelines for conversion of opioid analgesics?

A: Pharmacists frequently receive questions regarding the conversion of patients from one opioid preparation to another. This may be due to several factors including selection of an alternative dosage form, the need to use parenteral medications, inadequate response to a current dosage regimen, etc. The accompanying table provides a list of comparative oral and parenteral doses of various opioid analgesics. A separate table is included for methadone as conversion ratios are dose-related. These are approximate equivalents and vary somewhat from one reference to another. The *bulleted* items beneath the table should also be considered. The reader is encouraged to consult the references below for additional information on this complex topic.

**Table 1. Approximate Dosage Equivalents for Opioid Analgesics**

Medication	Equianalgesic Doses (mg)	
	Oral	Parenteral
Morphine	30	10
Buprenorphine	0.4 (SL)	0.3
Codeine	200	100-130
Fentanyl	-	0.1
Hydrocodone	30-45	-
Hydromorphone	7.5-8	1.5-2
Meperidine	300	75-100
Oxycodone	20-30	-
Oxymorphone	10	1
Tramadol	120	100

\* ER = extended release  
IR = immediate release

**Table 2. Methadone Equianalgesic Dosing (Oral Formulation)**

Morphine Daily Equivalent	Morphine to Methadone Ratio
30-89 mg	~4:1
90-299 mg	~8:1
300-499 mg	~12:1

- Optimal opioid dosing must be individualized; consider patient's prior opioid exposure, severity of pain, adverse effects, etc.
- Breakthrough dosing for short acting opioids: 10-20% of total daily dose or 25-30% of single standing dose
- Because cross-tolerance may be incomplete, many recommend that final calculated dose of morphine be ↓ by 25-33% before initiating therapy with an alternative opioid
- Must wait 72 hours before increasing dose after initial application of a fentanyl *patch* (see labeling for subsequent dosing guidelines); a mcg per mcg conversion must not be used for non-parenteral forms of fentanyl
- Maximum daily dose of tramadol: 300 mg ER\* , 400mg IR\*
- Meperidine is no longer recommended for chronic pain

### References

- Equianalgesic dosing of opioids for pain management. Pharmacist's Letter/Prescriber's Letter 2010;26(7):260712.
- McPherson ML. *Demystifying Opioid Conversion Calculations: A Guide for Effective Dosing*. Bethesda, MD: American Society of Health-System Pharmacists; 2010.
- Drugs for Pain. Treat Guidel Med Lett 2010;8:25-34.

Photo by: Beverly & Pack, used under Creative Commons License; <http://www.flickr.com/photos/walkadog/3684396632/> (Accessed June 28<sup>th</sup>, 2010)

Jennifer L. Paliani and Ronald D. Picking, Pharm.D. Candidates; Van M. Mai, Pharm.D. Pharmacy Resident

**The PIC Question of the Week is a publication of the Pharmaceutical Information Center, Mylan School of Pharmacy, Duquesne University, Pittsburgh, PA 15282 (412.396.4600).**